

August 2003

## Capabilities of hydraulic fluid purifier, test stand validated

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WRIGHT-PATTERSON AIR FORCE BASE, Ohio — In late June and early July, a team of experts from the Materials and Manufacturing Directorate's nonmetallic materials division nonstructural materials branch conducted specialized testing on purified hydraulic fluids to validate a new piece of hydraulic ground test and support equipment. The Support Equipment Program Management Division at Robins Air Force Base, Ga., is procuring the equipment.

Researchers verified that the system, a combination hydraulic ground test stand with a built-in hydraulic fluid purification system, is capable of reducing air, moisture, dirt and solvent contaminants in used hydraulic fluid to acceptable levels, and that the used fluid can be reused.

"This new equipment will be the first computer-controlled test stand and has been long awaited in the field," said Lois Gschwender, a researcher from the nonstructural materials branch.

"The new test stand is a huge step in the right direction for the Air Force to lead the way in pollution prevention and will go a long way in ensuring top notch fluid in our aircraft to provide our warfighters the best weapon system possible," added Chief Master Sgt. Randy Durkee of the Aeronautical Enterprise Program Office.

The combined, collaborative effort will reduce one of the Air Force's largest waste streams by 75 to 90 percent without negatively affecting the maintainability of aircraft hydraulic systems. Implementation of purification processes are also expected to provide the Air Force with millions of dollars a year in savings by eliminating procurement and hazardous waste disposal costs.

Additional savings are expected due to the simplification of the life cycle of the fluid and a reduction in quality-assurance testing.

Clean fluid also reduces the probability that contaminated hydraulic fluid, which has been responsible for mishaps and accidents in the past, causes flight control problems. In addition, improved reliability and life extension of hydraulic system components in the aircraft will be achieved through the use of cleaner purified hydraulic fluid in aircraft hydraulic systems.

"Ongoing research has shown that one way to reduce the hydraulic fluid waste is to purify the fluid for reuse in the aircraft," said Ed Snyder, another researcher from the nonstructural materials branch. "Using the purification concept, fluid never leaves the aircraft/purifier test stand system, which eliminates costs associated with transportation and disposal of contaminated hydraulic fluid."

Electromagnetic interference testing, followed by an operational test and evaluation are the next and final validation requirements for the system, which a representative from Malabar International, the system manufacturer, said would be completed by September or October.

If the tests are successful, Malabar will build and deliver 600 separate systems for the Air Force. @